

8. ALTERNATIVES

This chapter describes the system alternatives reviewed and evaluated for the 20-year planning period ending in year 2020.

Corporate Jet Accessible Alternatives

As illustrated in Exhibit 1, Virginia has an extensive, mature aviation system, with greater than 97 percent of the 2000 Virginia population within 30 minutes of a GA airport *or* 45 minutes of a Commercial Service Airport¹³. Given such substantial service area coverage, it was decided to primarily focus the alternatives analysis on the ability of corporate aviation to use the Virginia airport system. To establish the most appropriate criteria by which to judge a corporate jet accessible airport, three alternatives were presented to the Study Advisory Group (SAG) for review.

A variety of factors were considered, including runway length and NAVAIDS, amenities such as weather reporting equipment, and the availability of services such as Jet-A fuel. However, preliminary analysis confirmed a direct correlation between runway length/approach type, and the other factors. Accordingly, further analysis focused on runway length and approach type. In addition, all service area contours were changed to 30 minutes, to reflect the GA nature of corporate aviation, even at Commercial Service airports.

Criteria I - Airports with 5,500 feet of runway length and a precision approach.

This criteria included 15 airports with 75.6 percent of the 2000 Virginia population within 30 minutes of an Criteria I Corporate Jet Accessible airport (see Exhibit 2). Assuming the improvements recommended in the System Requirements chapter were implemented, this alternative would eventually include 20 airports, with 81.4 percent of the Virginia population within 30 minutes of a Criteria I airport (see Exhibit 3).

Criteria II - Airports with 5,500 feet of runway length and a non-precision approach.

This criteria included 17 airports, with 76.0 percent of the 2000 Virginia population within 30-minutes of an Criteria II Corporate Jet Accessible airport (see Exhibit 4). Assuming the improvements recommended in the System Requirements chapter were implemented, this alternative would eventually include 29 airports, with 87.5 percent of the Virginia population within 30-minutes of an Criteria II airport (see Exhibit 5).

Criteria III - Airports with 5,000 feet of runway length and a non-precision approach.

This criteria included 27 airports with 85.3 percent of the 2000 Virginia population within 30 minutes of an Criteria III Corporate Jet Accessible airport (see Exhibit 6). Assuming the improvements recommended in the System Requirements chapter were implemented, this alternative would eventually include 35 airports, with 90.0 percent of the Virginia population within 30 minutes of an Criteria III Corporate Jet Accessible airport (see Exhibit 7).

¹³ The methodology for this analysis is provided in Appendix B.

Recommended Corporate Jet Accessible Criteria

Input from the SAG and the National Business Aircraft Association (NBAA) suggested that although some smaller corporate aircraft can operate on a much smaller runway, 5,500 feet of runway length is needed for most corporate jet use, especially when considering a variety of weather conditions. It was also determined that the type of approach was less important than the available approach minima. The approach minima agreed upon included a 400 foot ceiling and 1 statute mile visibility (400-1).

Exhibit 8 shows the 16 airports and 75.7 percent of the Virginia population within 30 minutes of a corporate jet accessible airport. Exhibit 9 shows the 23 airports and 83.3 percent of the population within 30 minutes of a corporate jet accessible airport that could be expected assuming the recommended improvements in the System Requirements chapter were implemented.

The Commonwealth currently has adequate service coverage of corporate jet accessible airports, and the coverage will increase as improvements are implemented. Nonetheless, service gaps remain, especially in southwest Virginia where terrain often makes improvements cost prohibitive. For better geographic coverage, additional improvements should be considered at the airports shown in Table 1. These improvements are recommended solely on the basis of geography, existing facilities, and a preliminary analysis of the feasibility of the improvements. It is important to note that these improvements may not be technically or financially feasible, and their justification will require further detailed analysis.

Table 1

Potential Additional Corporate Jet Accessible Airports

Airport	Existing Runway Length	Recommended Runway Length (1)	Existing Approach Minima	Improvements Needed for Corporate Jet Airport
Culpepper	4002	5500	507-1	Reduce approach minima to 400-1
Blue Ridge	5000	5500	515-1	Reduce approach minima to 400-1
Mt. Empire	5250	5250	524-1	Expand runway to 5,500 ft and reduce approach minima to 400-1
VA Highlands	4470	5500	732-1	Reduce approach minima to 400-1
Lee County	0	5000	0	Expand runway to 5,500 ft and reduce approach minima to 400-1

Note 1: Runway length calculations from facility requirements chapter.

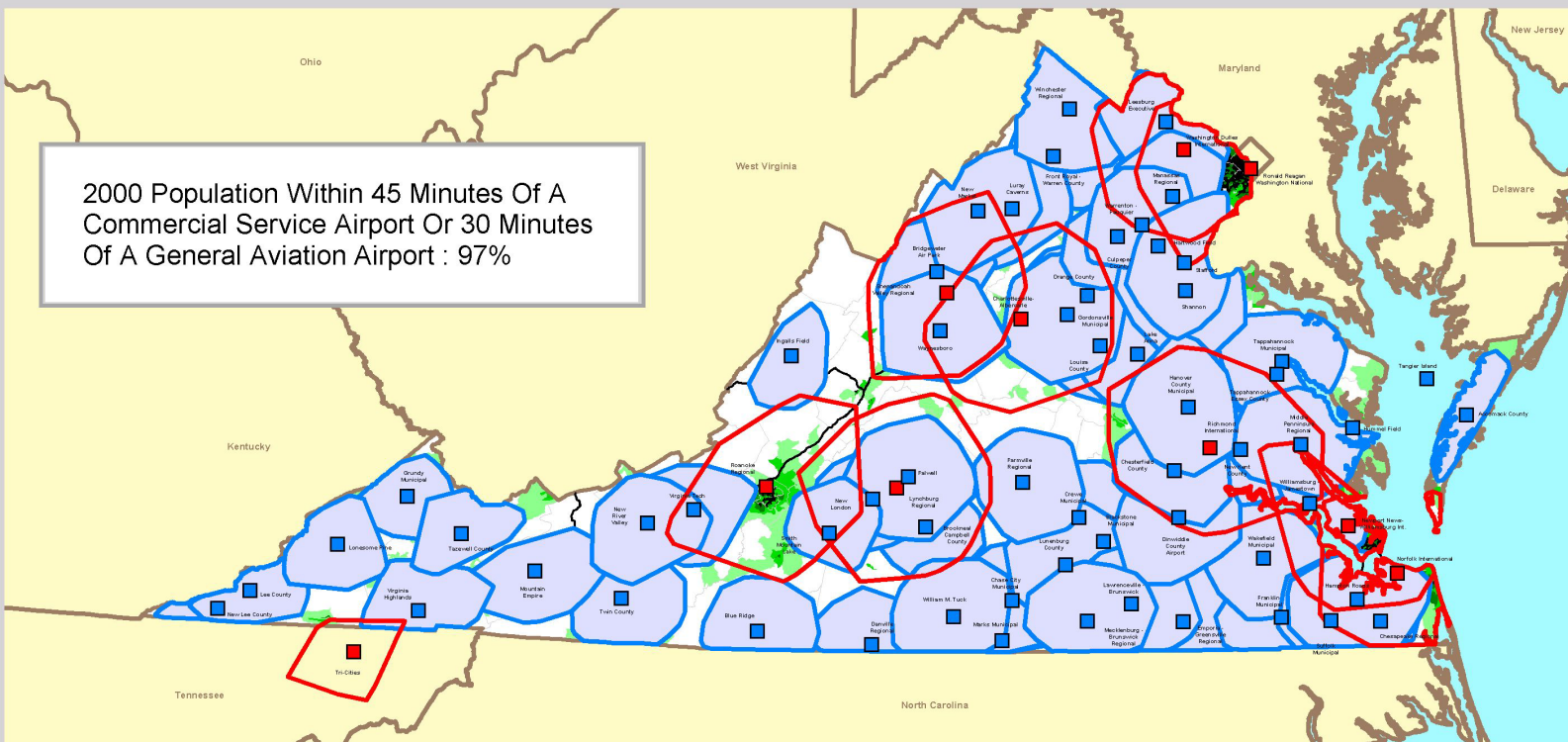
Source: HNTB Analysis



VIRGINIA AIR TRANSPORTATION SYSTEM PLAN

AIRPORT SERVICE AREAS

Alt - Exhibit 1



— 45 Minute Commercial Service Travel Time
— 30 Minute General Aviation Travel Time

■ Commercial Service Airport
■ General Aviation Airport

2000 Population Per Square Mile

	0 - 50
	51 - 150
	151 - 1,500
	1,501 - 3,000
	3,001 - 64,000

50 0 50 Miles



Source: HNTB Analysis



VIRGINIA AIR TRANSPORTATION SYSTEM PLAN

CRITERIA 1 - CORPORATE JET AIRPORTS - EXISTING CONDITIONS

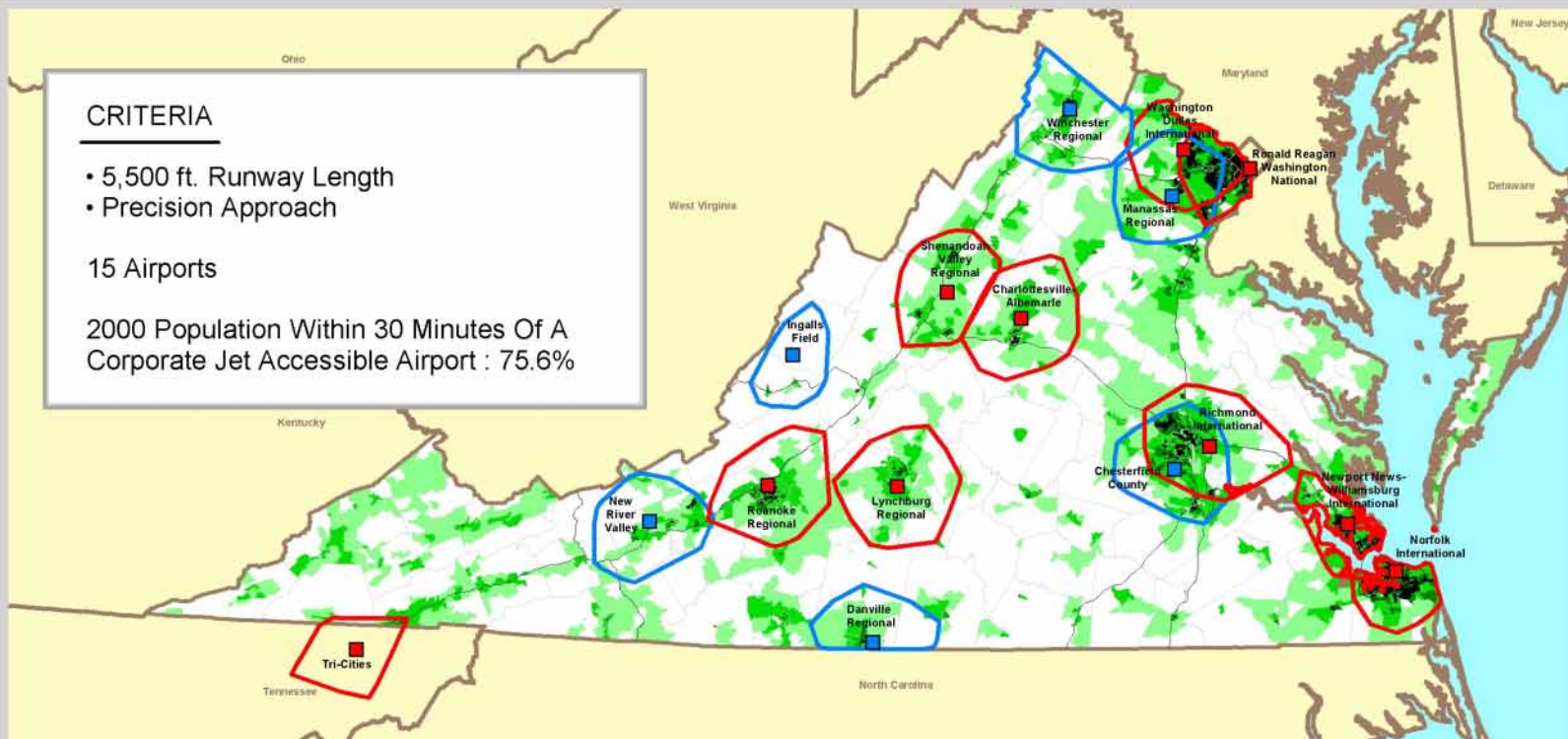
Alt - Exhibit 2

CRITERIA

- 5,500 ft. Runway Length
- Precision Approach

15 Airports

2000 Population Within 30 Minutes Of A Corporate Jet Accessible Airport : 75.6%



- 30 Minute Commercial Service Travel Time
- 30 Minute General Aviation Travel Time

- Corporate Jet Accessible - Commercial Service Airport
- Corporate Jet Accessible - General Aviation Airport

50 0 50 Miles

2000 Population Per Square Mile

- 0 - 50
- 51 - 150
- 151 - 1,500
- 1,501 - 3,000
- 3,001 - 64,000



Source: HNTB Analysis



VIRGINIA AIR TRANSPORTATION SYSTEM PLAN

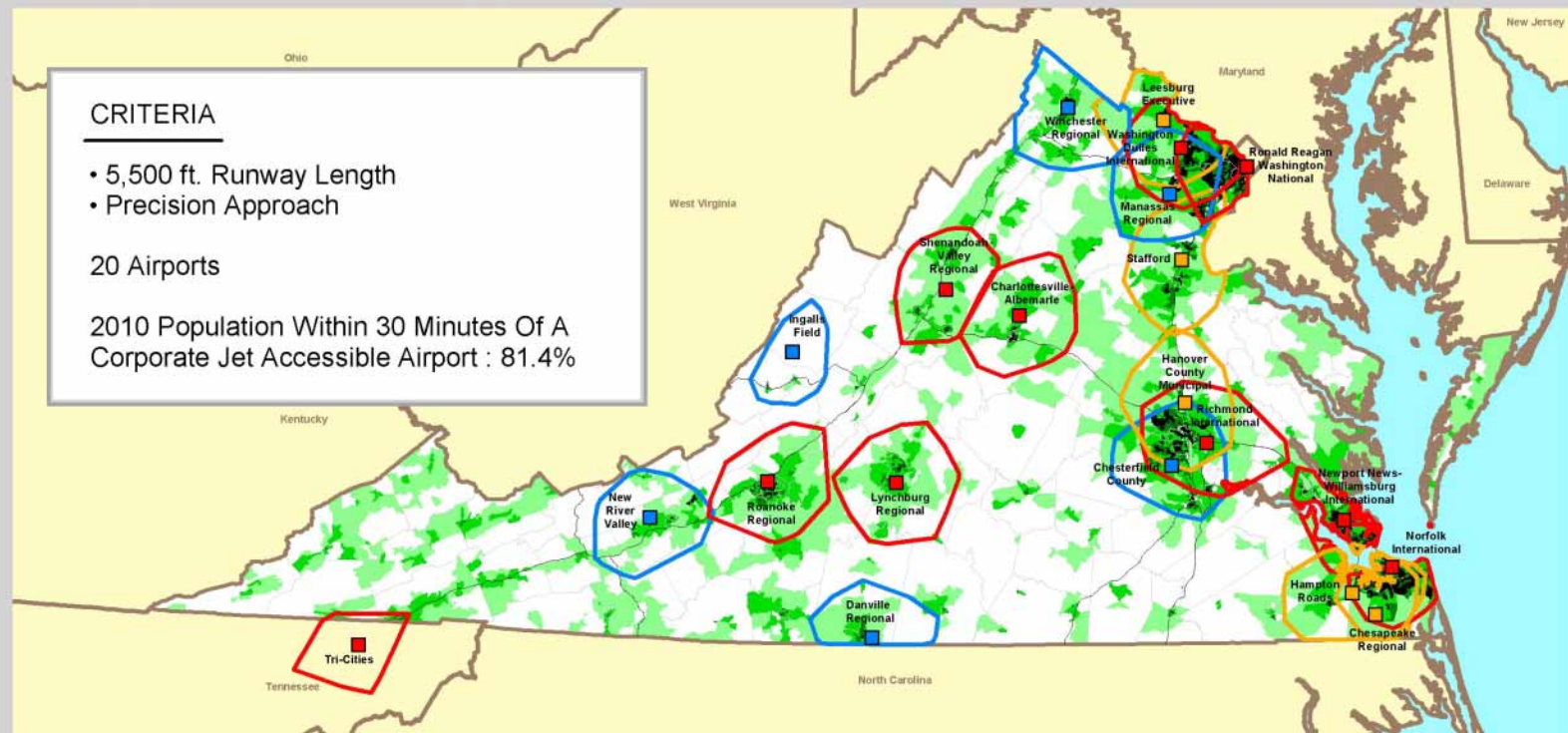
CRITERIA 1 - CORPORATE JET AIRPORTS - WITH RECOMMENDED IMPROVEMENTS Alt - Exhibit 3

CRITERIA

- 5,500 ft. Runway Length
- Precision Approach

20 Airports

2010 Population Within 30 Minutes Of A Corporate Jet Accessible Airport : 81.4%



- 30 Minute Commercial Service Travel Time
- 30 Minute General Aviation Travel Time
- 30 Minute General Aviation Travel Time (With Recommended Improvements)

- Corporate Jet Accessible - Commercial Service Airport
- Corporate Jet Accessible - General Aviation Airport
- Corporate Jet Accessible - General Aviation Airport (With Recommended Improvements)

- 2010 Population Per Square Mile
- 0 - 50
 - 51 - 150
 - 151 - 1,500
 - 1,501 - 3,000
 - 3,001 - 64,000

50 0 50 Miles



Source: HNTB Analysis